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**WVU professor co-authors book with space age applications**

MORGANTOWN – A professor in West Virginia University’s Lane Department of Computer Science and Electrical Engineering has co-authored a book, “Reduced Order Systems,” that has potential applications for space exploration.

In an age of challenging engineering systems problems, like those occurring with the international space station, there are many engineers and scientists faced with solving complicated technical problems, said Parviz Famouri, who co-authored the book with colleagues Ali Jalali and Craig Sims during a five-year project.

Jalali earned his doctorate from WVU and is an adjunct professor in the Lane Department. Sims, who died in 2001, was a professor in the Lane Department.

Dr. Famouri describes the book, recently released by Springer, as ideal for use as a textbook or reference book.

“Engineers have begun to design controllers and estimators for mathematically-complicated systems, such as flexible space structures, which would include a space shuttle’s robotic arms and large power networks,” Famouri said.

“In this book, we have provided a coherent view of many important results in the area of reduced order systems, how they relate to each other and what their strong and weak points are,” he added.

Results are scattered in the current literature in an incoherent way and some are unavailable, making it difficult for an engineer or beginning researcher to get a focused view of the research area, and to understand the major issues, Famouri noted.

The book explains the major issues in detail and will help researchers and engineers get started solving their own particular problem.

“Engineering systems have order,” explained Famouri about the reduced order systems theory addressed in the book. “Simple systems have a lower order, like first and second, while more complicated systems have high orders of 10, 20 or more. By reducing the order, the computational burden of the systems can be more easily managed, but the systems can still retain their essentials, and they can be more practical to implement.”

“It (the book) was hard work, but it was well worth the effort since many scientists and engineers will use and refer to the book for years to come,” he added.

“Reduced Order Systems” is available at <http://www.springer.com>.

Springer is the world’s second-largest specialist publishing group in the science, technology and medicine sector, according to its Web site.

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